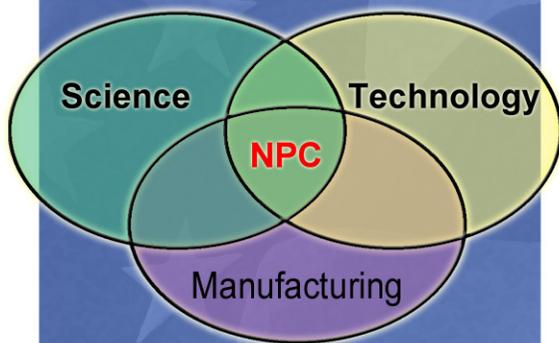


The National Prototype Center

The National Prototype Center integrates science, technology, and manufacturing for customer-specific applications.



National Prototype Center



Advanced Amphibious Assault Vehicle (AAAV)



"Hospital in a Box"



The National Prototype Center (NPC) is a place where government agencies and private industry find the capabilities, skills and resources needed to turn great ideas into innovative, affordable, manufacturable products. More than 1,000 businesses and federal agencies use the center's resources every year.

Specializing in high-risk, complex prototype work, the NPC integrates manufacturing, engineering, and scientific capabilities to build first-of-a-kind products; modify or enhance existing products; develop new, innovative manufacturing processes; and solve tough manufacturing problems.

The NPC provides a broad spectrum of advanced manufacturing facilities and equipment:

- Unique multi-axis and high-speed machining capabilities
- Large-scale coordinate measuring machines that are among the most accurate in the world
- Capabilities in machining ferrous, nonferrous, ceramics, graphite, and hazardous materials
- Classified environment to handle sensitive programs

With over 50 years of prototyping experience, the center has provided solutions for a variety of unique projects:

Advanced Amphibious Assault Vehicle (AAAV) – delivered prototype planing hulls and turrets

Advanced Surgical Suite for Trauma Casualties (ASSTC) – with the Army and Marine Corps, prototyped a "Hospital in a Box"

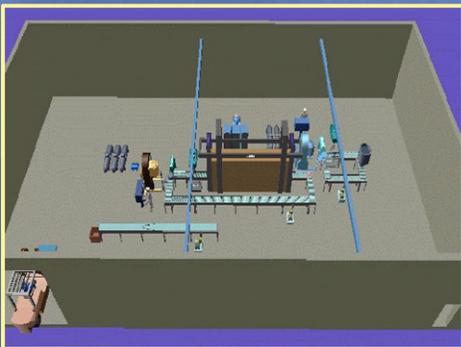
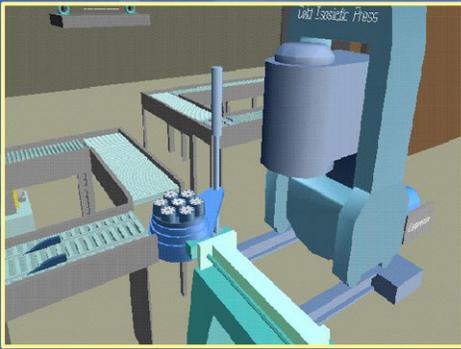
Seawolf Propulsor – developed a full-scale prototype propulsor for the Seawolf submarine ahead of schedule and \$5 million under budget

Future Armor Rearm System – demonstrated first fully automated ammunition resupply

Successful prototyping starts with modeling and simulation.

Simulation technologies and advanced computational methods allow us to

- develop machine training,
- verify tool programs and paths,
- operate processes,
- build up assemblies, and
- check clearances.



Core Competencies

- Precision manufacturing
- Manufacturing and materials technology development
- Metrology and quality assurance

Example Capabilities

- Prototyping from subnanometer to decameter scale
- Advanced machine simulation
- Surface finishes to angstrom tolerances
- Fabrication tolerances to 50 millionths of an inch
- Advanced materials development and manufacture

Tools/Resources

- 400 machine tools
- 250 computer-controlled and 3-, 5-, and 8-axis milling tools
- 18 coordinate measurement machines
- 10 equipment suites for skills enhancement
- CAD/CIM capabilities and tools

Partners from industry and other government agencies procure unique and specialized services that are otherwise unavailable. The NPC uses existing facilities and personnel to secure hundreds of millions of dollars investment by the government and maintain a state-of-the-art level to support missions vital to national defense.

For more information, contact:

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Y-12 National Security Complex



Guaranteeing America's Security . . .

For more than half a century, the Y-12 National Security Complex in Oak Ridge, Tennessee, has been vital to defense of the free world. From revolutionary nuclear technology that helped to end World War II to the next generation amphibious assault vehicle that will protect our future fighting forces, we apply advanced manufacturing technologies to help guarantee America's security. Y-12 is a National Nuclear Security Administration facility operated by BWXT Y-12.

Pursuing Science with a Purpose . . .

In partnership with other federal agencies and industry, we apply the best scientific discoveries to real-world manufacturing challenges, developing processes and producing prototypes that meet critical national security needs. Our unique capabilities and accomplishments were recognized through designation by Congress in 1997 as the National Prototype Center. We are aggressively moving to further modernize our manufacturing processes with leap-ahead technologies and to clearly establish the science basis for all of our processes.

Demonstrating Manufacturing Excellence . . .

Manufacturing excellence is the heart of Y-12, and our complementary work program focuses on solving tough manufacturing problems for other federal agencies and private industry. We have expertise in precision manufacturing, including high-risk prototypes and demonstrations, manufacturing and materials technology development, metrology and quality assurance. From advanced metals casting technologies to high-tech methods of metal purification, we are in constant pursuit of the best available manufacturing technologies. Our manufacturing processes cover the spectrum from design to precision machining to the most precise dimensional measurements available in the hemisphere, all focused on meeting the exacting performance requirements of our national security missions.

